

What is claimed is:

1. A method for producing silicon wafers with improved surface features, comprising the steps of:

(a) supplying a substrate fabricated substantially of silicon; and

5 (b) exposing the substrate to an etching bath containing a caustic etching solution including an additive, wherein the additive is a chlorite salt, an iodate salt, or a mixture thereof.

2. A method according to Claim 1, wherein the additive is potassium iodate.

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3. A method according to Claim 1, wherein the additive is sodium iodate.

4. A method according to Claim 1, wherein the additive is a mixture of potassium iodate and sodium iodate.

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5. A method according to Claim 1, wherein the additive has an additive concentration of at least about 0.01% by weight.

6. A method according to Claim 1, further comprising the step of forming the additive by
20 chemical reaction in the etching bath.

7. A method according to Claim 1, further comprising the step of forming the additive by a reaction in the etching bath between iodic acid and hydroxide.

8. A method according to Claim 1, further comprising the step of forming the additive by an oxidation of I_2 with chlorate in the etching bath.

5 9. A method according to Claim 1, wherein the additive is sodium chlorite.

10. A method according to Claim 1, further comprising the steps of:

(c) removing a portion of the solution from the etching bath;

(d) exposing the portion of removed solution to the additive; and

10 (e) returning the exposed portion of removed solution to the etching bath.